

Food Scrap Pilot Curbside Program Report:

August 2010 – January 2011

Howard County, Maryland
Department of Public Works
Environmental Services – Recycling Division



Table of Contents

| | |
|--|---|
| Introduction:..... | 1 |
| Why compost food scraps? | 1 |
| Background:..... | 1 |
| Methodology: | 3 |
| Observations and Feedback: | 3 |
| Recommendations:..... | 6 |
| Additional considerations:..... | 6 |
| Summary: | 7 |
| Attachment A: Area Map..... | 8 |
| Attachment B: Instruction Booklet..... | 9 |

Introduction:

According to the US EPA, food waste is the largest component of discarded trash by weight. In 2009, 34.29 million tons of food waste was generated for disposal, which represents 14.1% of the total amount of trash generated in the United States. Of the 34.29 million tons of food waste generated, only 2.5% was recovered through composting – the remaining 33.44 million tons were discarded as trash, using methods such as landfilling or incineration.

With those numbers in mind, food waste is certainly the next frontier for residential recycling programs. In counties with established curbside recycling collection programs such as Howard County, where curbside collection already includes paper, cardboard, glass and plastic; food waste is the next challenge. Expanding into residential food waste collection programs will allow the County to increase its recycling rate and reduce the amount of material sent to the landfill. Consequently, a small pilot program to examine the practicality and feasibility of beginning a curbside food scrap collection program for Howard County residents was conducted in an Ellicott City neighborhood over a six month period in 2010.

This pilot program could not have been completed without the assistance of our volunteer families, Recycle Green (the yardwaste processing contractor), Take Trash (collections contractor) and the Rehrig Pacific Company and Otto Environmental Systems USA, who loaned us the various sized curbside collection carts.

Why compost food scraps?

There are a great many reasons to compost food scraps, covering a range of interests from financial to environmental. Food sent to a landfill is a wasted resource – it takes up space, costs money to bury, and creates methane (a greenhouse gas) as it decomposes in a landfill. Composting not only avoids these problems, but the finished compost is a valuable soil amendment, an alternative to synthetic fertilizers, and may help reduce runoff and water pollution problems. To encourage residents to compost at home, the County has given away over 5,700 free compost bins to residents, partnered with the Master Gardeners at compost demonstration sites, and included compost information on the County website. Despite these efforts, a recently conducted telephone survey on County residents recycling habits found that only 24% of residents compost at home.

Over the past 5 years, the County was very fortunate and was able to extend contracted trash disposal fees, thus securing a lower-than-average tipping fee for residential trash. The current contract with secured pricing is soon coming to an end and it is reasonable to project a substantial increase in the tipping fee. In anticipation of this increase, recycling staff were directed to find ways to reduce the amount of material sent for disposal, specifically through food waste reduction. To augment the County's successful curbside single stream recycling program, the implementation of a curbside food scrap collection program would be the next logical step to reduce the amount of material sent to a landfill, thereby keeping trash disposal costs down.

Background:

To determine the most effective food scrap collection program for County residents, a pilot curbside collection program was deemed the best way to gather information, including feedback from residents. The cost of the pilot was limited to staff time and negligible supply costs.

The location for the pilot curbside program was a neighborhood in Ellicott City (attachment A) that traditionally has a high participation level in the County's recycling program and is in a curbside yardwaste collection area. This neighborhood was also selected because of the routing of the trucks, willingness of the collection hauler to participate, County ability to communicate with residents via a community list-serv, and a large number of single family homes enabling easy tracking and recording of data. Initially, two email requests for volunteers were sent out through the community list-serv. The emails were followed by targeted door-to-door distribution of an informational door hanger by staff to approximately 200 homes. This direct contact also provided a valuable opportunity to discuss the program with residents. As a result of these efforts, 34 participants were identified. Each 'participant' represents one volunteer household.

To provide an easy and cost-effective pilot program, it was determined that curbside collection of the food scrap was to be in conjunction with yardwaste collection and from reusable containers. Wheeled, lidded curbside carts were loaned to the County by the Rehrig Pacific Company ("Rehrig Pacific") and Otto Environmental Systems North America ("Otto"). In addition, Rehrig Pacific also loaned the County kitchen pails for use inside homes. The two container approach was used to eliminate the need for bagging material in plastic bags, since it is more expensive to process the material in plastic bags. In addition to the expense, plastic is undesirable in the composting process as well as in the finished product; and bagged food scraps could be confused with household trash. The rigid containers protect against rodents while providing storage capacity. An important lesson learned from the single stream recycling program is that carts make recycling easy and convenient – both traits that will need to be replicated for a successful food scrap program. This was further confirmed during a recent survey in which 56% of Howard County residents prefer to have their food scraps collected from a County provided cart.

Carts were distributed to the volunteer households. Each was assigned one of the following types: 10.5 gallon cart with two handles and a snap-lock lid; 20-gallon cart with a raised floor; 35-gallon cart with side vents, or 65-gallon cart with lid, side and/or bottom vents. Rehrig Pacific and Otto provided Howard County with the carts for the course of the pilot program and participating households were able to test the different models of carts along with curbside food scrap collection methods. Additionally, Rehrig Pacific provided the County with a 2-gallon indoor collection bin for kitchen storage which was given to each participant.

The yardwaste collection contractor agreed to pick up food scrap with the normal yardwaste collection at no additional cost. Currently, most Howard County residents set yardwaste out for weekly collection from April 1 through the third week in January. The number of participants was limited in part due to the number of loaned carts and also to reduce the extra work for the collection contractor.

On August 6th, each participant was delivered a detailed information packet (Attachment B), outdoor collection cart, indoor collection container, and a notebook in which to record their experiences. Participants were asked to record their experiences to help gather additional data based on user experience with the carts and collection process. The detailed information packet explained to residents the types of materials that should be included, such as vegetable scraps, egg shells, pizza boxes and paper towels. Participants were instructed not to include meat, fish, dairy products or pet waste. An email address specific to the pilot program was created as an additional method for the volunteers to communicate directly with County staff.

Methodology:

Curbside collection of the food scrap began on August 13th, 2010. Material was sent to the Hoods Mill Recycle Green facility located in Woodbine, MD for processing at no additional cost beyond the current yard waste processing rates. Recycle Green is the County contractor for yardwaste processing, and they also accept food scrap from businesses in the Washington and Baltimore area for composting. Once the material arrived at their facility, RecycleGreen further mixed the yardwaste and food scraps with other wood and yard debris and the material began composting. The material is then ground and screened to remove any foreign material like pieces of plastic bags, and further processed in other piles until it is ready to be sold. In addition to Recycle Green, the County also has Top Soil Etc. under contract for composting services.

The carts were emptied once per week and the food scraps could be mixed with yardwaste, which allowed the County to provide the service without adding an additional collection vehicle to the neighborhood. Mixing food scraps with yardwaste also helped to absorb liquids from the food scrap, thus keeping odors down. The pilot curbside program ran through the third week in January, to coincide with the end of the curbside yardwaste collection.

Recycling Division staff routinely visited the neighborhood to observe the progress of the pilot program, making visual checks of cart contents and gather data for set-out and participation reports. Additionally, staff talked with participants about the program, and recorded weights of both trash and food scrap carts using a portable scale to determine how much material was diverted. Trash weights were recorded for pilot participants and their neighbors to measure the amount of trash reduced through this program. Periodic emails were sent, providing additional tips and suggestions, as well as reminders about holiday collection schedules and encouragement to continue to record feedback and information in their notebooks.

Observations and Feedback:

This pilot program provided a great deal of valuable information and experience and confirmed community interest in a curbside food scrap collection program. In addition to field observations by staff, participants were asked to record their experiences in their notebooks which proved to include valuable insights. Many of the residents indicated that they were sorry that the pilot program was ending and they hoped it could be continued in the future.

The pilot program diverted an estimated 3.9 tons of food scrap and yardwaste from the landfill. We were able to gather Howard County-specific data and observations on trash and food scrap weights which were unknown prior to this study. Field measurements showed that the average weight of material in the carts was 12.5 pounds per week; this includes food scrap and any yardwaste. The smaller (10.5 gallon and 20 gallon) carts, which were used almost exclusively for food scraps, had an average weight of 8.4 pounds. Field measurements of the trash weights for participants with the smaller food scrap carts averaged 28.14 pounds. Based on these measurements, we calculated that approximately 23% of the residential trash in the pilot area was food waste.

Also evaluated were the strengths and weaknesses of each style of cart as well as compatibility with our collections system. Key concerns for program participants included ease of use including maneuvering and cart

cleaning. Carts that had the fewest number of corners and locations for material to get trapped were the most popular. The majority of the residents that received the largest cart (65gallons) periodically mixed yardwaste and food scrap in the carts. Residents with the smaller carts would occasionally 'top off' the small cart with yardwaste such as weeds, grass clippings and leaves. The carts with floor vents were occasionally problematic because they leaked fluid. The 10.5 gallon cart was not compatible with the cart tippers on the truck and did not allow much space to add yardwaste to the contents. The 35-gallon carts were easy to maneuver and once loaded were not too heavy. Conversely, the 65-gallon carts could be extremely heavy when loaded, presenting safety concerns for both residents and collection staff.

Overall, the kitchen pails loaned for the purpose of the pilot program were not very well received and many residents found another system for kitchen collection. In quite a few instances, the pails were considered hard to clean, not compatible with the kitchen aesthetic, or too big for the counter space. It was recommended to develop a sticker or sign that could be put on a resident's kitchen container of choice to reinforce the composting message and help educate guests and visitors.

Through field observations and conversations with participants, a potential problem in food scrap collection programs that will need to be addressed is the 'ick factor' (insects and odors). This is something that can be approached in a number of ways with education as the key. The most successful method to combat odors seemed to come when participants found a system to help scraps dry. During the warm weather, most participants had odor issues, with some being pretty severe. The pilot program began in August, which meant that as they were adjusting to using the cart and separating their food, they also had to determine what would work best for their household for minimizing possible problems. Tips and suggestions were shared via email, such as wrapping food scraps in newspaper to absorb some of the liquid, sprinkling baking soda in the cart to reduce smells, and mixing in cardboard, like pizza boxes to increase air circulation, as well as layering yard trimmings and food scraps in the cart. Odor issues were greatly reduced by using these suggestions. One of the most repeated (and observed) pieces of information was that residents loved being able to include pizza boxes with the food scraps. The ability to include pizza boxes helps to keep food scraps dry (thus minimizing odors); they are beneficial in the composting system; and provide a great recycling outlet for greasy containers that can't go in the blue recycling carts. Some families washed their kitchen container daily and/or every time they emptied it. A few houses had a significant insect problem at the beginning of the program. Meat, fish and dairy can lead to insect and odor problems, which is why the program did not and will not accept these items. A few participants had maggot problems at the beginning. The maggot problem ended several weeks later, and although no definite cause was confirmed, it is highly likely that meat products attracted them.

When the pilot ended on January 21, 2011 the carts and notebooks were retrieved. The following are comments, quotes and other relevant information we received about the pilot.

Quotes from the pilot participants:

- "The big surprises were the realization of how much food waste is part of our day-to-day trash. Once we began separating it, I was amazed at how much less trash we had."
- "We do not have a garden and do not compost so this program was great for us."
- "It reduces so much landfill waste and it's so easy. Now I'm so used to it, I can't remember what it was like not to compost."

- "I am sad to see the program go."
- "I hope we can continue this great program in Howard County."
- "Love that we can put pizza boxes in!"
- "Much more aware of how many paper towels I use to dry my hands. Am cutting back!"
- "I'm pleased to be participating in this program – it's so necessary. We have agreed to use our garbage disposal only when necessary."
- "Seems beans, bread products and coffee grounds are the most frequently recycled foodwaste in our house."
- "Would recommend this program again."
- "I like the two container (house/curbside) approach. If I was forced to bag the kitchen stuff, you'd likely end up with the bags in the curbside container as well."

Some other observations from the pilot participants:

Indoor Collection:

- One family put toothpicks and popsicle sticks in bins. Would have added chopsticks also.
- Another family used a pedal -operated 3-gal bin to collect food scraps; they preferred it to the kitchen pail.
- Great way to clean cupboard of stale/expired foods.
- Several households suggested that if program expands we should create a sign/sticker for indoor collection.
- One family started out excited about indoor pail then decided didn't like it.
- Indoor collection is tricky – looking for a system that doesn't get too "yucky/messy".
- Several people said that counter space at a premium so hard to know where to put indoor container.
- Couple of people stopped using the green bins and started using bowls instead – easier to use and also to clean.

Outdoor Collection & Containers:

- Suggested we implement program in winter when there are fewer fruit flies.
- Several people mentioned successfully using baking soda to help control odors in cart.
- Several families felt they had to rinse and wash inside bin each time it is emptied.
- One family started out worried about odor problems but then worked around it.
- Attached lid makes cart hard to wash in laundry sink. Another family would have preferred a kitchen container that fit in the dishwasher or with a removable lid that makes it easier to wash. Several people mentioned regularly washing both bins and carts but couldn't wash big green cart outside once weather got cold and outdoor faucet was turned off.
- Several residents started using paper grocery bags to line small indoor container to keep it cleaner.
- Liked vent on top of container so could tell difference between carts in the dark
- 2 people tried using plastic bags to line small bin then either rinse or toss the bag once contents are emptied into larger cart.

Recommendations:

The next step would be to conduct a pilot program in a Trash and Recycling Zone (TRZ) and continue to monitor participation and cart weights in order to evaluate the TRZ pilot before a County wide program is initiated.

Below are the specific recommendations for the full scale pilot in a TRZ.

- Carts: A county-provided 35-gallon lidded, wheeled cart is recommended since it can accommodate food scraps, yardwaste, pizza boxes, is easy to use and is compatible with the cart tippers required on collection vehicles. It will be important to make participation as easy as possible for residents; providing carts to residents will remove one possible obstacle to participation. Residents should not be allowed to set material out in plastic bags.
- Pilot Location: TRZ-11 (Eastern Ellicott City and Elkridge) has been identified as a possible area in which the pilot program could be conducted. The new collection contract for TRZ-11 will start in June, and included in the bid pricing is food scrap collection from carts and direct hauling of the material to the Recycle Green facility at Hoods Mill. As a special note, TRZ-11 was used as the pilot area for the single stream recycling carts.
- Timeframe: Expand food scrap and yardwaste collection to 12 months for the pilot area.
- Participants: One major difference between this program and the single stream recycling cart pilot is that residents would have to opt-in in order to participate in the food scrap pilot program. It is anticipated from the survey that about half the households in TRZ-11 would be interested in food scrap collection.
- Education and Outreach: Educating residents will be one of the key elements to ensure success. Residents will need to know exactly what can and cannot be placed in the carts, as well as how to take care of the carts. The suggestions from our pilot program participants, as well as tips and tricks learned from other communities, will need to be incorporated. An in-mold label similar to the one on the recycling carts will need to be created, in addition to providing information through our brochures, website, list-servs, community meetings and other opportunities. It was suggested by one of the pilot program volunteers that we include them in our education efforts to demonstrate to other residents how easy the program is.
- Signing Up: Informational postcards will be mailed to each household receiving County-provided collection service to let them know that this program is coming. That would be followed up with another mailing containing additional program details and a postcard that would be separated and mailed back to the County, to request a cart and to be included in the program. Participation and cart weights would be monitored to evaluate the expansion of the program County-wide.

County Wide Program changes: In addition to the recommendations above, the yardwaste and food waste collection would potentially be expanded county wide with year round collections.

Additional considerations:

Howard County will also explore the following before beginning a countywide food scrap collection program:

- Composting at home will continue to be promoted. Providing curbside collection will allow residents another option to dispose of food scraps without placing them in the trash, since many families are not willing or able to compost food scraps at home.
- Ongoing education about compostable materials as well as cart maintenance and cleaning will be important for long term program success.
- It is possible that large amounts of food scraps mixed with grass clippings in the summer months could lead to extra liquid in the truck, which could spill and create odors.
- On-going research into experiences of other communities with food scrap programs will be needed.
- Ensuring that the food scrap processor would be able to process the amount of material they would be receiving.
- Explore banning the use of plastic bags for yardwaste and food scrap collection. This will reduce processing costs, produce a good quality compost product and reduce trash volumes.

Summary:

During the course of the pilot program the average weekly setout rate was 76%, with an overall 100% participation rate (meaning every family set their cart out but may not have set it out every week). Since it was a group of volunteers, the overall participation rate was expected to be high. One family asked to be removed from the pilot program after 2 months; the reason given was that they did not feel that they generated enough food scrap. Over the duration of the pilot program, an estimated 3.9 tons of food scraps and yardwaste were diverted from the landfill by the pilot program participants. Based on measurements of the food scrap carts and trash carts, we calculated that approximately 23% of the residential trash in the pilot area was food scraps.

The initial pilot program conducted in Ellicott City was well received by participants and indicated that a county-wide food scrap collection program with carts would be a valuable service to Howard County residents and the environment. Curbside food scrap collection helped to reduce the trash weights by approximately 23% and increase recycling.

Attachment A: Pilot area map



Food Waste Recycling Pilot Program



Howard County Recycling Division
6751 Columbia Gateway Drive, Suite 514
Columbia, MD 21046



410-313-6434



Email:
foodwastepilot@howardcountyrecycles.org

Thanks!

Thank you for participating in our pilot program for curbside food waste collection! By using the food waste cart provided and recording your thoughts and experiences, you will provide us with valuable insight to determine the most convenient and efficient way to possibly provide this service County-wide.

While this pilot program primarily focuses on collecting fruit, vegetable and table scraps; certain used paper products will also be accepted. These items are collectively referred to as "food waste" for the purpose of this program.

Now that you have your cart, you can begin!

There are three simple steps:

- 1) **Identify** accepted food waste,
- 2) **Collect** it, and
- 3) **Record** your thoughts.



Identify

Listed below are the types of items that are either accepted or not accepted in this program. If you come across an item that you have a question about, please include it in your journal, email or call us and we will be happy to help you.

Accepted:

- * Fruit and vegetable scraps (fresh or cooked)
- * Egg shells
- * Bread, pasta, beans, grains and nuts
- * Coffee grounds, filters, tea bags (no foil or foil-backed products)
- * Corn cobs and husks
- * Paper towels and napkins with food residue on them
- * Uncoated paper plates
- * Pizza boxes (remove any non-food items)
- * Paper egg cartons and paper bags
- * Small quantities of grass and leaves



Not Accepted:

- * Meat or fish
- * Meat or fish bones
- * Dairy products (cheese, butter, ice cream, etc.)
- * Oils, fats or grease
- * Facial tissues
- * Styrofoam
- * Pet waste
- * Plastic-coated paper plates or bowls
- * Plastics of any kind, including bio-degradable plastics
- * Milk cartons: Recycle in your blue bin/cart
- * Waxed paper or cardboard, aluminum foil or plastic wrap (please recycle cardboard and clean aluminum foil in your blue bin or cart)



Collect

Indoor Collection

Accepted food waste and paper products can be collected in the house and stored in a small bucket or lidded container. Containers without lids will probably need to be emptied nightly into to your curbside container to prevent odors, but a lidded container should be fine in the house for a day or two.

Odors

If you experience odors in your **indoor collection** container, try sprinkling a thin layer of baking soda on your food waste. You can also use a sheet of newspaper or used paper towels to absorb moisture and block odors.

If you experience odors in your **curbside container**, use layers of grass, leaves, cardboard, paper bags, garden lime or a thin layer of baking soda to absorb liquids and reduce odors. Please keep the curbside container closed to prevent insect or animal issues.

While leaves and grass can be added to your cart to prevent odors, please do not overwhelm the food waste cart with these materials.

Curbside Collection

The food waste will be collected by the same truck that collects your yardwaste. Please roll your cart to the curb before 6am on **Friday**, your recycling day.



Record

Curbside food waste recycling collection is not only new to Howard County, but to the entire State of Maryland. While we have researched food waste collection in other states, there is no substitute for the "real world" experience that you will provide us.

Please record your experiences however is easiest:

- * Hand-written in the notebook that we have provided
- * Typed responses and/or photos that can be sent to foodwastepilot@howardcountyclecyles.org



Please include all your thoughts, **positive or negative**, even if it doesn't seem relevant at the time. We also welcome helpful hints or suggestions that you may come across during the process.

We encourage you to involve the whole family, even children, in this project and welcome everybody's input in the journals.

**Remember, your experiences will help us
to determine the most efficient method for collection.**

After the program ends, please leave your notebook on top of your cart so we can pick them both up. It is not necessary to include your contact information unless you would like follow-up information.

Frequently Asked Questions

How long will this program last?

The pilot program will run through January 21st. We will retrieve all carts the following week. Please leave your cart at the curb starting Monday, January 24th.

Can my friend or neighbor participate?

While the program is limited to 40 households, there may be remaining availability. If your friend or neighbor lives in the target neighborhood of Centennial, it might be possible for them to participate. Please have them email us at foodwastepilot@howardcountyrecycles.org.

Do I have to cut everything into small pieces?

No, that is not necessary. The facility that processes the material can handle whole fruits and vegetables as well as smaller scrap pieces.

Will the 40-pound weight limit apply to my food waste cart?

Yes, normal yardwaste collection rules will still apply during this pilot.

What if my container isn't picked up?

If your container is not picked up, please call 410-313-6444.

Should I keep using my garbage disposal?

No, please do not. Putting food waste into the garbage disposal will prevent us from getting a true picture of how much food waste is generated by Howard County households each week. Also, garbage disposals are the most environmentally expensive means of processing food waste.

What about leftovers that contain oils, butter or cheese?

Small amounts of these items are acceptable in this pilot program if they are ingredients in a prepared meal. Please do not put a cup of oil, a whole stick of butter or a block of cheese into the cart.

I only have a small amount of food waste this week. Should I still roll out my cart?

Please roll your cart out every week so we can get a good idea of how much food waste is generated.

I have some leftovers including a meat sauce that has spoiled. I would like to add it to the food waste container but your brochure says "No Meats." What should I do?

Small amounts of meat or fish that were used as an ingredient in a cooked meal such as spaghetti, pizza or fajitas can be included in the food waste cart. However, meatballs or other easily removed meat or fish products should be placed in the trash.

What should I do about liquids in my cart?

Liquid that accumulates in the cart through the decomposition of food waste and/or yardwaste should be expected and does not need to be managed in any special way. To avoid liquids and possible odors, use layers of cardboard, newspaper, leaves or grass, garden lime, used paper towels or baking soda.

How do I know if my paper plates are coated or not?

If you can easily tear the paper plate and you do not see a thin film of plastic along the edge of the tear, it can be added in with the food waste. If you see a thin film of plastic on the plate, please place it in the trash. When in doubt, throw it out.

Can I keep my food waste in a biodegradable plastic bag while I am collecting it indoors and then place that bag into the curbside container?

No. We are asking pilot participants to refrain from disposing biodegradable plastic bags in the cart. However, you may use a bio-degradable bag indoors and then empty the bag into the cart. Paper bags are acceptable in the cart as long as they are not coated with plastic.

After the pilot period is over, can I still put food waste out with my recycling?

No. While we hope that you will want to continue to recycle food waste even after the pilot is over, please wait to see if we introduce a County-wide program. However, if you are not already composting your yardwaste, we have FREE composting bins available to residents. You can safely compost all of the items on the Accepted List as long as you mix in layers of yardwaste.

**For additional questions,
please do not hesitate to call (410) 313-6434**



Thank you again for participating in this program.
Your efforts and interest in food waste recycling will help
Howard County continue its goal to "Live Green."

If you need assistance or have any questions,
please call 410-313-6434

Or email,
foodwastepilot@howardcountyrecycles.org